

CLAIMS

It is claimed:

1. A transmission system, comprising:
a primary engaging member comprising a first side having an engaging section and a non-engaging section; and
a plurality of engaging members for engaging with said engaging section, wherein said engaging gears are configured such that at least one of said engaging gears is engaged to said engaging section of said primary engaging member at a particular angular orientation of said primary engaging member, and at least one of said engaging members is not engaged to said engaging section at said particular angular orientation of said primary engaging member.
2. The transmission system of claim 1, wherein said engaging section extends an angular distance of ϕ , and said non-engaging section extends an angular distance of $(360 - \phi)$.
3. The transmission system of claim 1, wherein said engaging section comprises a plurality of teeth.
4. The transmission system of claim 3, wherein said teeth are elongated.
5. The transmission system of claim 4, wherein a longitudinal direction of said elongated teeth substantially coincides with a radial direction of said primary engaging member.
6. The transmission system of claim 4, wherein a longitudinal direction of said elongated teeth is skewed from a radial direction of said primary engaging member by a helix angle.

7. The transmission system of claim 4, wherein said teeth are configured as a spiral or a hypoid.

8. The gear system of claim 1, wherein said engaging section comprises a gear ratio changing path.

9. The transmission system of claim 1, further comprising a shaft rotationally engaged with said primary engaging member.

10. The transmission system of claim 1, wherein respective rotational axes of said engaging gears are substantially orthogonal to a rotational axis of said primary engaging member.

11. The transmission system of claim 1, further comprising a plurality of shafts rotationally engaged with respective engaging members.

12. The transmission system of claim 11, wherein each of said shafts comprises a narrower diameter section interposed between two wider diameter sections, wherein said corresponding engaging member includes an aperture registered with said narrower diameter section, and wherein said corresponding engaging member is capable of moving along an axial direction of said narrow diameter section.

13. The transmission system of claim 12, wherein said narrower diameter section includes a key portion.

14. The transmission system of claim 12, wherein said two wider diameter sections function to stop said axial movement of said corresponding engaging member.

15. The transmission system of claim 12, further comprising a second set of engaging members rotationally engaged respectively with said shafts.

16. The transmission system of claim 15, further comprising a secondary gear rotationally engaged with said second set of engaging members.

17. The transmission system of claim 16, further comprising a second shaft rotationally engaged with said secondary engaging member.

18. The transmission system of claim 1, further comprising a device to move said engaging members in a manner that changes a gear ratio between said engaging members and said primary engaging member.

19. The transmission system of claim 18, wherein said device comprises a hydraulic device.

20. The transmission system of claim 18, wherein said device comprises an electric motor.

21. The transmission system of claim 18, wherein said device comprises a spring.

22. The transmission system of claim 18, wherein said device comprises a pneumatic device.

23. The transmission system of claim 1, further comprising a device to ensure said engaging members engage with said primary engaging member at substantially the same gear ratio position during movement of said engaging members along a gear ratio changing direction.

24. The transmission system of claim 23, wherein said device comprises a plurality of rods, wherein each of said rod includes a first portion pivotally coupled to a corresponding engaging member by way of a bearing, and a second portion pivotally coupled to an adjacent rod.

25. The transmission system of claim 1, wherein said primary engaging member comprises a gear.

26. The transmission system of claim 1, wherein said primary engaging member comprises a sprocket.

27. The transmission system of claim 1, wherein at least one of said engaging members comprises a gear.

28. The transmission system of claim 27, wherein at least one of said engaging members comprises a sprocket.

29. An engaging member comprising a side having an engaging semi-annular section for engaging with a plurality of gears and a non-engaging semi-annular section.

30. The engaging member of claim 29, wherein said engaging semi-annular section extends an angular distance of ϕ , and said non-engaging semi-annular section extends an angular distance of $(360 - \phi)$.

31. The engaging member of claim 29, wherein said engaging semi-annular section comprises a plurality of teeth.

32. The engaging member of claim 31, wherein said teeth are elongated.

33. The engaging member of claim 32, wherein a longitudinal direction of said elongated teeth substantially coincides with a radial direction of said engaging member.

34. The engaging member of claim 32, wherein a longitudinal direction of said elongated teeth is skewed from a radial direction of said engaging member by a helix angle.

35. The engaging member of claim 31, wherein said teeth are configured as a spiral or a hypoid.

36. The engaging member of claim 29, wherein said engaging semi-annular section comprises a gear ratio changing path.

37. A motion system, comprising:
a rotational energy source;
a transmission system coupled to said engine, wherein said transmission system comprises:
a primary engaging member comprising a first side having an engaging section and a non-engaging section; and
a plurality of engaging members for engaging with said engaging section, wherein said engaging members are configured such that at least one of said engaging members is engaged to said engaging section of said primary engaging member at a particular angular orientation of said primary engaging member, and at least one of said engaging gears is not engaged to said engaging section at said particular angular orientation of said primary engaging member;
and
a load coupled to said transmission system.